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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/12926	International filing date (day/month/year) 18.11.2003	Priority date (day/month/year) 21.11.2002
International Patent Classification (IPC) or both national classification and IPC C11D11/00		
Applicant UNILEVER PLC et al.		

1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 - This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 7 sheets.

3. This report contains indications relating to the following items:
 - I Basis of the opinion
 - II Priority
 - III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV Lack of unity of invention
 - V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI Certain documents cited
 - VII Certain defects in the international application
 - VIII Certain observations on the international application

Date of submission of the demand 26.04.2004	Date of completion of this report 22.07.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Hillebrecht, D Telephone No. +49 89 2399-8168



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 03/12926

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-4, 7, 8, 11, 12, 19-32	as originally filed
5, 6, 9, 10, 13, 18	filed with telefax on 08.07.2004

Claims, Numbers

8-10	as originally filed
1-7	filed with telefax on 08.07.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

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6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

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EXAMINATION REPORT - SEPARATE SHEET**

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Reference is made to the following document/s:

D1: WO99/61479

D2: WO00/65015

D3: WO98/29528

V.

1. The subject-matter of claim 1 to 10 is novel. None of the cited documents discloses a washing method, wherein black or darkly coloured fabrics are treated in a washing liquor comprising 0.001 to 0.1 g/l of a hydroxy C2-C4 alkyl derivative of a beta 1-4 polysaccharide. (Article 33(1) and (2) PCT).
2. The subject-matter of the present claims involves an inventive step (Article 33(1) and (3) PCT). The problem of the instant application resides in providing a laundering method which leads to reduced fabric abrasion and reduced dye pick-up for coloured cloth.
4. D1 teaches that hydrophobically modified cellulose esters , including such, which are based on HEC and HPC are i.a. known to provide improved abrasion resistance. The suitable amounts of hydrophobically modified cellulose esters ranges from 0.1 to 5 wt%. The compositions further comprise from 1 to 80 wt% deterutive surfactants. However, there is no indication that unmodified hydroxy alkyl celluloses would serve the same purpose.
5. D2 teaches that abrasion resistance can be reduced by applying a fabric treatment composition comprising a film forming polymer. Hydroxylalkyl celluloses are especially contemplated. The composition may be formulated in any suitable form. Although the amounts referred to in D2 will lead to the presently required amounts and abrasion resistance will be observed regarding any colour of fabrics, D2 is limited to the treatment of new and/or clean fabrics. Thus, there is no teaching would lead the skilled worker to apply it in a main wash cycle.
6. D3 shows composition providing improved abrasion resistance comprising from 0.1 to 8 wt% of a modified cellulose ester. As in D1 there is no indication leading to the use of e.g. an hydroxy ethyl cellulose comprising an unmodified hydroxy alkyl group.
7. A variety of examples appear to be outside the scope in view of the required amount of hydrophobically modified cellulose esters. See examples 1 to 4. These

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examples have not been marked as comparative, as far as the concentration of hydrophobically modified cellulose esters exceeds 0.1 g/l. Thus, there are doubts regarding the scope of the claims due to the inconsistency between claims and description (Article 6 PCT).

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hydroxyethyl or hydroxypropyl cellulose which have been modified with a C₁₀ to C₂₄ hydrocarbon.

Patent US 6,200,351 B1 discloses the use of a soil release 5 polymer based on a copolyester of a dicarboxylic acid and a diol or polydiol in the surfactant-free, pre-treatment step of an institutional washing process. Hydroxy-ethyl cellulose derivatives are mentioned (see column 5 lines 55ff).

10

Brief Description of the Invention:

We have now determined that relatively low levels of hydroxy alkyl polysaccharides, which are themselves insufficient to 15 give a marked viscosity increase are however, capable of giving benefits in a wash liquor in terms of reduced fabric abrasion and reduced dye pick-up for coloured cloth.

Accordingly, the present invention provides a method of 20 treating coloured fabrics with a luminance (L*) less than 50 which comprises contacting the fabrics with a main wash liquor comprising:

- a) 0.1-0.001 g/L of a hydroxy C₂-C₄ alkyl derivative of a 25 beta 1-4 polysaccharide, and,
- b) detergent active surfactant.

The invention also subsists in the use of a hydroxy C₂-C₄ 30 alkyl derivative of a beta 1-4 polysaccharide, at a

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concentration of 0.1-0.005 g/L, in a deterersive surfactant containing main wash liquor to reduce fabric abrasion.

Luminance (also known as lightness) is the measure of the brightness of a surface on a black-white scale. It is one of the triplet of independent measurements, the other two being chroma (C^* , which measures saturation) and hue (H^* , which measures chromatic tone), which can be used to characterise any colour by locating it in a 'colour space'.
Changes in these three values can be combined to give the well known measure 'delta E' which is often used to determine the change in colour of an article when it is washed.
In this specification the colour space used as a referent is the CIELAB (International Lighting Commission) system, also known as the CIE 1976 colour space. This is an internationally recognized standard. When L^* is 0 the surface being considered is black. When L^* is 100, the surface is a white standard. Such a white standard is supplied for use with the Datacolor™ Spectraflash SF600+ reflectance spectrometer.

Colours with luminance (L^*) less than 50 are also known herein as 'Class 3' colours. Class 3 colours can be further separated into three sub-classes

- high chroma (C^*), saturated colours such as bright purple, and intense blue,
- low chroma muted tones such as browns and olives, and,

30

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Detailed Description of the Invention:

Carriers and Product Form:

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The polymer is used to treat the textile in the wash cycle of a laundering process.

The composition of the invention may be in the form of a liquid, solid (e.g. powder or tablet), a gel or paste,
5 spray, stick or a foam or mousse. Examples include a main-wash product.

Liquid compositions may also include an agent which produces a pearlescent appearance, e.g. an organic pearlising
10 compound such as ethylene glycol distearate, or inorganic pearlising pigments such as microfine mica or titanium dioxide (TiO_2) coated mica. Liquid compositions may be in the form of emulsions or emulsion precursors thereof.

15 **Detergent Active Compounds:**

The detergent composition, may be chosen from soap and non-soap anionic, cationic, nonionic, amphoteric and zwitterionic detergent active compounds, and mixtures
20 thereof.

Many suitable detergent active compounds are available and are fully described in the literature, for example, in "Surface-Active Agents and Detergents", Volumes I and II, by Schwartz, Perry and Berch (Interscience Publishers, 1958),
25 or in the 'Surfactant Science' series (Edward Arnold Publishers, 1967 onwards).

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The detergent composition may contain as builder a crystalline aluminosilicate, preferably an alkali metal aluminosilicate, more preferably a sodium aluminosilicate.

5 The aluminosilicate may generally be incorporated in amounts of from 10 to 70% by weight (anhydrous basis), preferably from 25 to 50%. Aluminosilicates are materials having the general formula:

10 $0.8-1.5 \text{M}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 0.8-6 \text{SiO}_2$

where M is a monovalent cation, preferably sodium. These materials contain some bound water and are required to have a calcium ion exchange capacity of at least 50 mg CaO/g.

15 The preferred sodium aluminosilicates contain 1.5-3.5 SiO₂ units in the formula above. They can be prepared readily by reaction between sodium silicate and sodium aluminate, as amply described in the literature.

20 Alternatively, or additionally to the aluminosilicate builders, phosphate builders may be used.

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Other Components

Compositions according to the invention may comprise soil
5 release polymers such as block copolymers of polyethylene
oxide and terephthalate.

Other optional ingredients include emulsifiers, electrolytes
(for example, sodium chloride or calcium chloride)
10 preferably in the range from 0.01 to 5% by weight, pH
buffering agents, and perfumes (preferably from 0.1 to 5% by
weight).

Further optional ingredients include non-aqueous solvents,
15 perfume carriers, fluorescers, colourants, hydrotropes,
antifoaming agents, enzymes, optical brightening agents, and
opacifiers.

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Claims:

1. A method of treating coloured fabrics with a luminance (L*) less than 50 which comprises contacting the fabrics with a main wash liquor comprising:
 - 5 a) 0.1-0.001 g/L of a hydroxy C2-C4 alkyl derivative of a beta 1-4 polysaccharide, and,
 - 10 b) detergent-active surfactant.
2. A method according to claim 1 wherein the fabrics are black.
- 15 3. A method according to claim 1 wherein hydroxy C2-C4 alkyl derivative of a beta 1-4 polysaccharide is a cellulose derivative.
4. A method according to claim 1 wherein the hydroxy C2-C4 alkyl derivative is a hydroxy ethyl derivative.
- 20 5. A method according to claim 1 wherein the degree of substitution of the hydroxy C2-C4 alkyl derivative (DS) is 1-3.
- 25 6. A method according to claim 1 wherein the degree of substitution of the hydroxy C2-C4 alkyl derivative (DS) is 1.5-2.25.
- 30 7. A method according to claim 1 wherein the hydroxy C2-C4 alkyl derivative is hydroxy ethyl cellulose.